Panexin

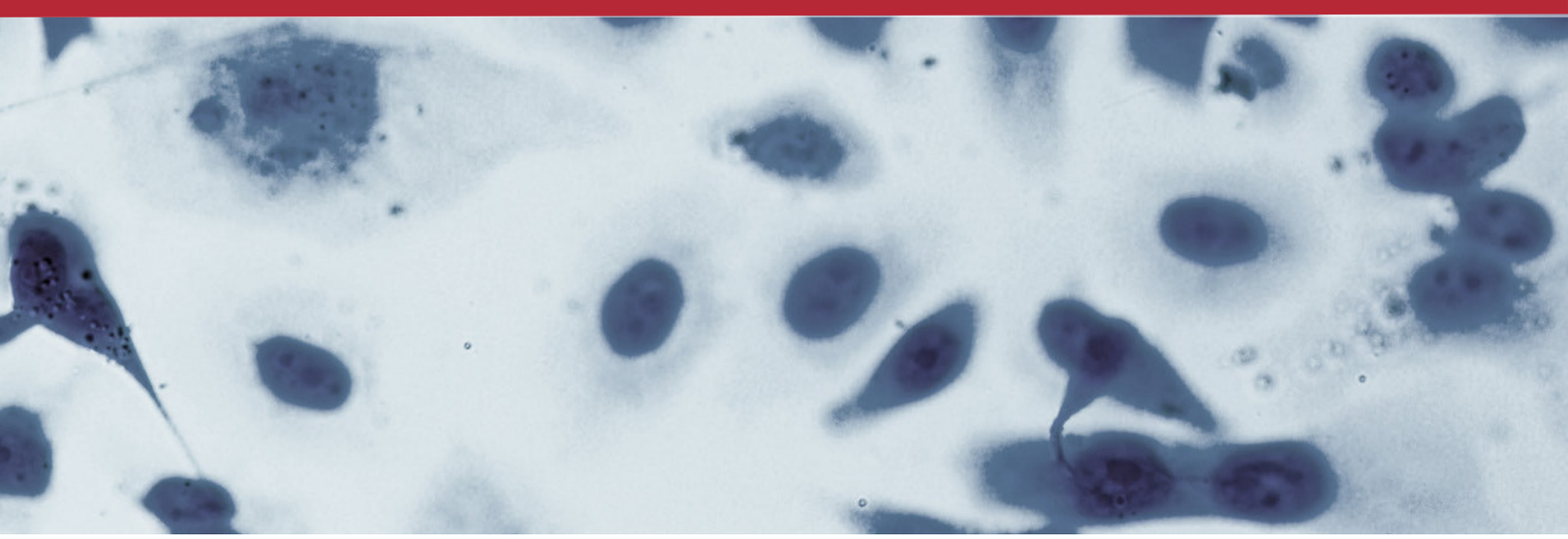
Chemically defined serum replacement

No more serum testing!
Enjoy the easy handling and the full reproducibility!

Panexin basic can be used for the cultivation of adherent and non-adherent cells under **serum-free** conditions, or to significantly **reduce** the necessary amount of serum in cell culture. For more demanding cell lines we also designed Panexin NTA (for adherent cells), NTS (for non-adherent cells) and Panexin Pharma Grade (animal component free).

PAN-Biotech Serum Replacements

Made in Germany since 1988



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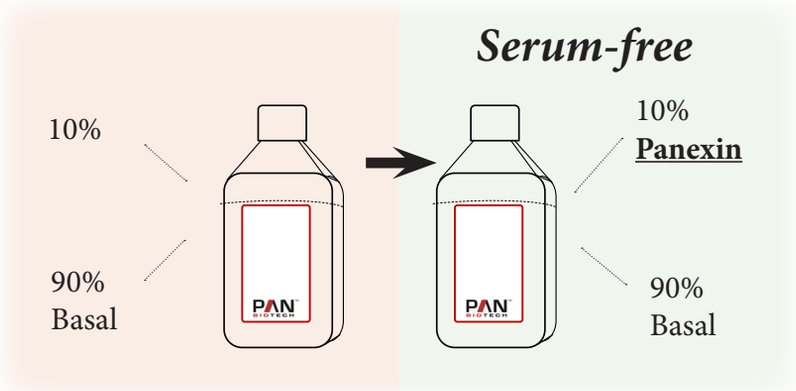
To replace serum



Easy to use:

- Panexin basic can be stored and used in the same manner as serum
- The performance can be further improved by optimizing the concentration of Panexin or modifying/changing the basal medium
- **IMPORTANT**: If Trypsin is used to detach adherent cells it needs to be deactivated with Trypsin inhibitor (1 ml inhibitor per 1 ml Trypsin). Accutase does not need to be inhibited

Some cell types (e.g. primary cells) need to be adapted gradually to the serum-free condition.

10 % FBS

↓

7.5 % FBS + 2.5 % Panexin

↓

5 % FBS + 5 % Panexin

↓

2.5 % FBS + 7.5 % Panexin

↓

1 % FBS + 9 % Panexin

↓

10 % Panexin

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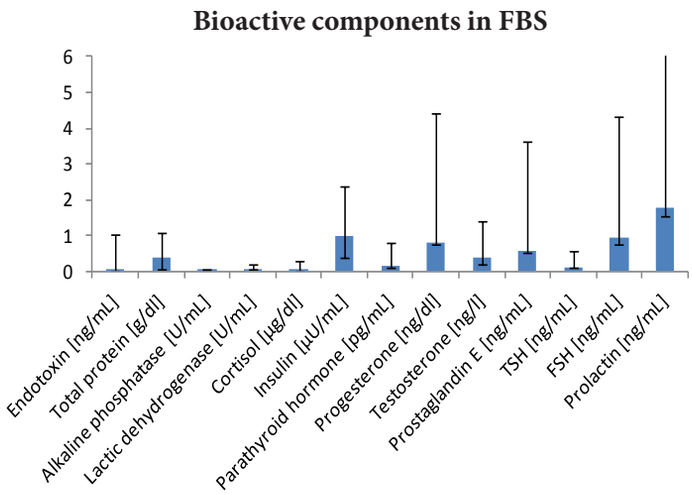
To reduce serum

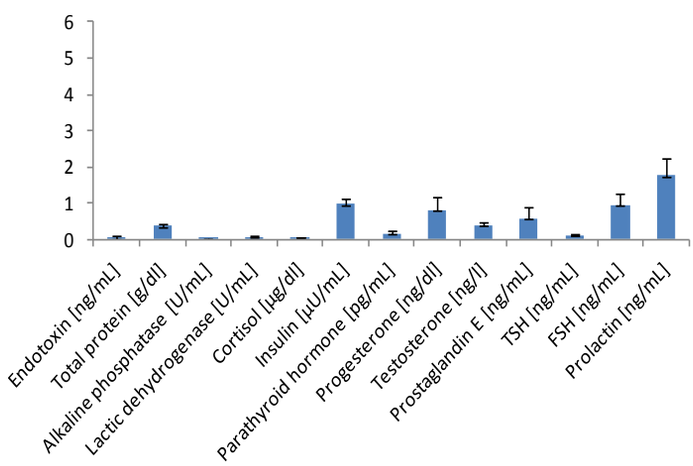
Media with 10% FBS:

- FBS contains hundreds of distinct proteins and thousands of metabolites in undefined, varying concentrations
- Resulting in inconsistent results and unreproducible data
- Data in figure from ***M. Baker, Nature 537 2016 433–435***



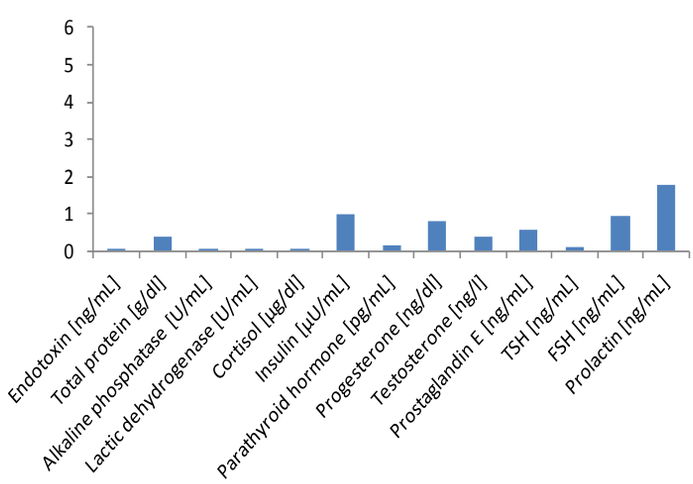
Media with 1% FBS and 9% Panexin:

- The variation of bioactive components in FBS from lot to lot can be reduced tremendously
- Can be easily adaped to a wide range of cell types
- With significantly improved reproducibility
- More independent from the lot, the origin and the supplier of FBS



Serum-free media with Panexin:

- Constant quality
- Highest reproducibility
- No more serum testing!



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Design your own serum-free media!

Table: Comparison of cell growth in 10% Panexin in different basal media. Growth in 10% FBS is defined as 100%

Cell-Line	Origin	Basal medium	Growth in Panexin
HEK 293 T	Human embryonic renal cells	DMEM/F12	105%
		alpha-MEM	76%
		DMEM	62%
MDCK	Dog renal cells	DMEM/F12	102%
		McCoy´s 5A	91%
		alpha-MEM	106%
MDBK	Bovine renal cells	RPMI 1640	122%
		McCoy´s 5A	135%
		DMEM	131%
L 929	Mouse fibroblasts	DMEM	97%
		RPMI 1640	78%
		Ham´s F-12	128%
HT-29	Human colon carcinoma	IMDM	108%
		DMEM/F12	98%
		alpha-MEM	96%
HeLa S3	Humanepithelial cervixcarcinoma	Glasgow MEM	106%
		IMDM	72%
		EMEM	100%
CHO	Hamster ovarial epithelial cells	DMEM/F12	106%
		IMDM	97%
		alpha-MEM	82%
3T3	Mouse fibroblasts	RPMI 1640	98%
		Mc Coy‘s 5a	72%
		DMEM/F12	97%
U-937	Human lymphoma	alpha-MEM	107%
		DMEM/F12	15%
		DMEM	20%
MM6	Human monocytes	RPMI 1640	120%
		Mc Coy‘s 5a	143%
		DMEM/F12	118%
HL-60	Human promyelocytic leukemia cells	RPMI 1640	92%
		DMEM/F12	14%
		DMEM	11%

The future of cell culture

Journals:

- *J Immunol.*
- *Prostate*
- *Int J Mol Med.*
- *Exp Dermatol.*
- *Am J Respir Cell Mol Biol.*
- *BRAIN*
- *Infect Immun.*
- *Anticancer Res.*
- *Vaccine.*
- *Int J Pharm.*
- *Free Radic Biol Med.*
- *Microbiology*
- *BMC Immunol.*

And daily more!

Cell types:

- Human pancreatic adenocarcinoma COLO357
- Human prostate cancer cell line (PC3)
- rMSC & hMSC
- RASF (rheumatoid arthritis synovial fibroblasts)
- Human liposarcoma SW872
- TAF (tumor-associated fibroblasts)
- SZ95 sebocytes
- Bone marrow derived macrophages (BMDMs)
- Human corneal epithelial cells (HCE-T, HCK)
- Human hepatoblastoma cell line Hep G2
- The human breast cancer cell lines MCF-7
- HeLa
- MDCK, HEK

And daily more!

Applications

- As serum replacement or medium supplement to increase the productivity in industrial cell cultures (CHO, MDCK, Vero, Hybridoma etc.)
- To avoid the exosoms or stimulatory effects of growth factors in serum
- To prevent the overgrowth of the culture by fibroblasts in coculture or in highly differentiated epithelial primary cultures
- To guarantee the reproducibility and sensitivity in cell-based *in vitro* assays
- To generally reduce the amount of serum due to ethical concerns, lot-to-lot variability or high costs

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Advantages

- **High reproducibility**
- **No extensive batch testing necessary**
- **Simplified downstream process**
- **Low risk of contamination**
- **Design your own defined serum-free or serum-reduced medium!**

Go serum-free!

The future of cell culture

Do you know?

Serum introduces several severe unknown variables into the cell culture procedure, as serum (a) is a poorly defined supplement (*Bjare, 1992; Gstraunthaler, 2003*); (b) batches show typically qualitative variations and different amount of endotoxins, haemoglobin and other factors (*Price and Gregory, 1982*); (c) can be a potential source of contamination (*Dormont, 1999; Eliot, 1999; Wessman and Levings, 1999*) and (d) does not represent physiological conditions. Therefore, FBS may alter the experimental output or the performance of assays.

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